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EXAMINER

BURCH, MELODY M

ART UNIT PAPER NUMBER

3683

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Please find below and/or attached an Office communication concerning this application or proceeding.



**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. the specification fails to show or disclose how an assembly including an arrangement of linear bearing assemblies configured as claimed and distributed such that they prevent a rotation between the first and second devices about an axis defining the axial direction can simultaneously be independently axially moved first and second to be moved such that the first device is configured to rotate relative to the second device about an axis transverse to the axial direction. Examiner notes that when first element 56 in figure 3 moves axially to axially move the corresponding linear bearing assembly, the linear bearing assembly associated with element 56 opposite first element 56 will also move by virtue of their connection via the top device, therefore, the linear bearing assemblies are not independently moved axially. The first and second devices could not rotate relative to one another about an axis transverse to the axial direction since the linear bearings were recited as being configured to prevent a rotation

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between the first and second devices about an axis defining the axial direction. It is noted that only axial movement is enabled with the claimed configuration.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 6, 7, 8, 10-14, 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6244541 to Hubert in view of US Patent 6523796 to Abramowsky et al.

Re: claims 1-2, 6, 7, 8, 12-14, 18, 19, and 20. Hubert shows in figures 1 and 10 a shock isolation system for reducing a transmission of energy in the form of shocks between first (4,6, 10''') and second (1,2,3,5,11''') devices, the system comprising: at least two linear assemblies 22i,12<sub>1</sub>'12<sub>2</sub>' extending substantially parallel in an axial direction between the first and second devices, the assemblies preventing rotation between the first and second devices about an axis defining the axial direction to the same extent as Applicant, but does not disclose that the linear assemblies are linear bearing assemblies with structures as claimed.

Abramowsky et al. teach in figures 2a-2c and in figure 9 the use of a linear bearing assembly extending substantially parallel in an axial direction between a first 31 and a second 17,25 device, the bearing assembly having a shaft member 29e connected to one of the first and second devices (particularly the second device) and a

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linear bearing shown surrounding element 29e in the area of element 31e connected to the other of the first and second devices, the linear bearing being configured to move axially on the shaft member such that the first and second devices are configured for relative motion therebetween in the axial direction; and a plurality of elastomeric isolators 35e,39e as set forth in the disclosure in col. 10 lines 6-14 configured to be axially loaded by a relative motion between the first and second devices in the axial direction, the isolators thereby being deformed to at least partially reduce the transmission of energy between the devices, wherein at least a pair of the isolators extend circumferentially around the shaft member of the linear bearing as shown. With regards to the rejection of claim 12 also see the rejection of claims 10 and 11 regarding the boost and kill vehicles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the linear assemblies of Hubert to have included linear bearing assemblies, as taught by Abramowsky et al., in order to provide an alternate and equally effective means of damping movement between the first and second devices.

Examiner notes that Hubert, as modified, results in the limitation of the isolators of each pair of being positioned opposite the linear bearing of a respective one of the bearing assemblies such that at least one of the isolators of each pair is compressed when the linear bearing of the respective bearing assembly moves axially.

Re: claim 10. Hubert shows in figure 1 and discloses in col.1 lines 23-31 the limitation wherein at least one of the first and second devices (particularly the second device 1,2,3,5,11""") is a boost vehicle configured to provide thrust for propulsion.

Re: claim 11. Hubert shows in figure 1 the limitation wherein at least one of the first and second devices (particularly the first device 4,6,10""") is a kill vehicle.

5. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6244541 to Hubert in view of Abramowsky et al. as applied to claims 1 and 12 above, and further in view of US Patent 5884736 to Burdisso et al.

Hubert, as modified, describe the invention substantially as set forth above including the presence of a linear bearing or sleeve shown between shaft member 29e and the surrounding element 31e, but does not include the limitation of the linear bearing having a plurality of balls for rollably contacting the shaft member member.

Burdisso et al. teach in figure 3 the use of a shock isolation system comprising a linear bearing having a plurality of balls shown in the area of the lead arrow of number 303 between a shaft member and a surrounding element.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the linear bearing of Hubert, as modified, to have included balls between the elements 29e and 31e in order to result in an alternate means of providing a low friction interface to facilitate sliding of the shaft member.

6. Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6244541 to Hubert in view of Abramowsky et al. as applied to claims 1 and 12 above, and further in view of US Patent 2729443 to Olinger.

Hubert, as modified, describe the invention substantially as set forth above, but does not include the limitation of the linear bearings and isolators being arranged in substantially planar and polygonal configuration.

Olinger shows in figure 4 the use of a shock isolation system comprising linear assemblies arranged in substantially a planar and polygonal configuration.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the arrangement of the linear bearing assemblies of Hubert, as modified, to have been in a substantially planar and polygonal configuration, as taught by Olinger, in order to provide a desired distribution of shock isolation. Examiner also notes that the change in the shape of the arrangement of the linear bearing assemblies is a matter of design choice absent evidence that the particular configuration is significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

#### ***Allowable Subject Matter***

7. Claims 3 and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

8. Applicant's arguments filed 12/15/05 have been fully considered but they are not persuasive.

In response to applicant's argument that Abramowsky is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the Abramowsky reference is reasonably pertinent to the particular problem with which the applicant is concerned.

Applicant's invention is concerned with an arrangement of linear bearing assemblies sandwiched between respective pairs of isolators to provide motion control and shock isolation capabilities. Abramowsky (figure 9) provides a linear bearing assembly sandwiched between a pair of isolators for providing motion control and shock isolation capabilities by way of providing a counterforce to a deflection force. Accordingly, the Abramowsky reference is reasonably pertinent to the particular problem with which the Applicant is concerned.

With regards to the 112 first rejections, Examiner maintains that the arrangement shown in figures 1 and 3 of Applicant's application is not capable of having a characteristic in which relative axial rotation between the first and second devices is prevented by the linear bearing assemblies but relative rotation of the first and second devices about an axis transverse to the axial direction is permitted. Examiner emphasizes that if relative axial rotation between the two devices was prevented by the arrangement of the linear bearing assemblies, the relative rotation about an axis transverse to the axial direction is also prevented.



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Applicant's representative argued that the specification supports such an arrangement since it states that when one side of the system is moved downward, the other side moves upward. Examiner notes that although support for the claim language is found in the specification, it still remains that the description as a whole including the drawings do not enable one of ordinary skill in the art to make or use the invention. Examiner points out that in order for relative transverse rotation to occur between the first and second device, there would have to be some play between the linear bearing 34 and the shaft 32. No play between the linear bearing 34 and the shaft 32 is mentioned in the specification or illustrated in the figures. In the interview mailed 11/4/05 Applicant's representative noted that, instead of there being play between the linear bearing and the shaft, the elements 56 would flex to enable the transverse rotation. Examiner responded that flexibility of elements 56 is not only not mentioned in the specification but also would cause the limitation of relative axial rotation between the first and second device being prevented as set forth in claims 1 and 12 to be an incorrect statement. In other words, if elements 56 were flexible to enable transverse rotation, that flexibility would also enable axial rotation unless the elements possessed some anisotropic characteristic. Elements 56 were not described as being flexible or anisotropic in nature.

Examiner maintains that in light of the axial rotation constraint set forth in claims 1 and 12, the lack of play between the linear bearing 34 and the shaft 32 shown in Applicant's drawings, and the lack of a description of the flexibility of elements 56, the linear bearings are not configured to be independently axially moved and are

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constrained against both axial and transverse rotation. Accordingly, the 112 first rejections have been maintained

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 571-272-7114. The examiner can normally be reached on Monday-Friday (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan can be reached on 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mmb  
February 6, 2006

*Melody M. Burch*  
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**Primary Examiner**  
**Art Unit 3683**  
2/6/06